



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,598	02/15/2001	Stefan Lauxtermann	ICB-0040	2696

29116 7590 05/05/2005

ROBINSON & POST, L.L.P.  
NORTH DALLAS BANK TOWER, SUITE 575  
12900 PRESTON ROAD, LB-41  
DALLAS, TX 75230

EXAMINER

VIEAUX, GARY

ART UNIT PAPER NUMBER

2612

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/784,598	LAUXTERMANN ET AL.	
	Examiner	Art Unit	
	Gary C. Vieaux	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1, 2, and 7 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Change of Examiner***

The prosecution of this application has been transferred to Examiner Gary C. Vieaux from the docket of Examiner Jeremy R. Elder. Any inquiry concerning this or earlier communications should be directed to the current Examiner of record. Current contact information is provided in the last section of this communication.

### ***Amendment***

The Amendment filed December 1, 2004 has been received and made of record. In response to the first Office Action, Applicant has amended claims 1-3, 6 and 7, as well as the Abstract, Specification and Figures 1, 2B and 3.

### ***Response to Amendment***

Figures 1, 2B and 3 have been amended to correct drafting inconsistencies related to reference signage and signal consistency. Therefore, the objections to the Drawings are hereby withdrawn.

The Abstract was amended to be limited to a single paragraph in length, as well as to remove legal phraseology. Therefore, the objection to the Abstract is hereby withdrawn.

The Specification was also amended to include appropriate section headings. Based on the foregoing corrections, the objection to the Specification is hereby withdrawn.

### ***Claim Objections***

Claims 1 was objected to based on claim language "said storage means" versus "said photosensor". This objection is withdrawn.

Claim 2 was also objected to based on the spelling of "stores", this objection has been overcome by amendment and is hereby withdrawn.

Claim 7 was objected to based on multiple dependencies, this objection has been overcome by amendment and is hereby withdrawn.

### ***Response to Arguments***

Applicant's arguments filed December 1, 2004 have been fully considered but they are not persuasive.

Applicant contends, on pages 8-9 of the Remarks, that Fossum does not teach or fairly suggest coupling of the photosensor element and the storage means only during the sampling phase. The Examiner respectfully disagrees. The alternative mode in Fossum clearly provides coupling of the photosensor element and the storage means only during the sampling phase (fig. 4A – 4G, col. 4 lines 16-42.) Therefore, the Examiner respectfully upholds the rejections.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2612

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claim 1** is rejected under 35 U.S.C. 102(e) as being anticipated by Fossum (US 6,667,738.)

Regarding claim 1, Fossum discloses a method for operating a CMOS image sensor that includes a phase during which photosensor elements and storage means are reset (col. 4 lines 16-19), at a determined initialization voltage (col. 3 lines 6-14), a second phase in which charge is accumulated after reset of the photodiode, wherein the photosensor is uncoupled from the storage means (fig. 4A, col. 4 lines 16-21), a third phase in which charge is sampled by a coupling of the photosensor element to the storage means (fig. 4B), a fourth phase in which the stored signal is read from the storage means, with the storage means being uncoupled from the photosensor element (fig. 4C), and wherein the photosensor element is held at a voltage such that any charge carrier generated by said photosensor element is drained and thus does not disturb the sampled signal stored on storage means (fig. 4F.)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fossum (US 6,667,738) in view of Bailey et al. (US 6,243,134.)

Regarding claim 2, Fossum discloses all of the limitations of claim 2 (see the 102(e) rejection to claim 1 supra) including teaching a method which includes during said first phase said photosensor element and said storage means are uncoupled from each other by means of the MOS transistor ('768 - fig. 3A indicator 202), and a fourth phase in which the photosensor element is again initialized at said determined initialization voltage, then, in a second stage, said sampled signal which is stored on said storage means is read ('768 - col. 3, lines 48-51). However, Fossum is not found to explicitly disclose the third phase as claimed.

Beiley et al. disclose a third phase during which said storage means, in a first stage, is released from said initialization voltage, then, in a second stage, is coupled to said photosensor element, thus allowing said sampled signal to be generated and stored in said storage means. By de-asserting the SAMPLE signal at time t3, the "exposed value" (sampled signal) is captured at node B (col. 3 lines 48-55.) It would have been obvious to one of ordinary skill in the art at the time of invention to combine the phase of Bailey with the method of Fossum for the benefit of creating a CMOS image sensor that is able to reset the photodiode while the storage node is being read out, resulting in a shorter image capture cycle.

**Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fossum (US 6,667,738) in view of Fossum (US 6,486,503.)

Regarding claim 7, Fossum discloses all of the limitations of claim 7 (see the 102(e) rejection to claim 1 supra) except for explicitly teaching a method wherein said the capacitive storage means ('768 - indicator 202) is protected from the light by a metal layer.

Nevertheless, Fossum '503 discloses the use of a metal layer (col. 9 lines 48-51.) It would have been obvious to one of ordinary skill in the art to include a metal layer as taught by Fossum '503, with the method as taught by Fossum '768, so that the non-photosensitive portion of the pixel is shielded from optical radiation ('503 - col. 9 lines 48-51.)

#### ***Allowable Subject Matter***

Claims 3-6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Guidash et al. (US 5,986,297) discloses a similar electronically shuttered pixel.

### ***Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary C. Vieaux whose telephone number is 571-272-7318. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

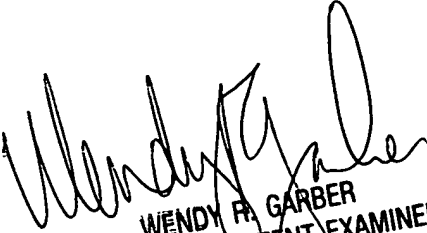


Application/Control Number: 09/784,598  
Art Unit: 2612

Page 8

Gary C. Vieaux  
Examiner  
Art Unit 2612

Gcv2

  
WENDY R. GARBER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600